USACE Levee Safety Program
&
Levee Safety Policy & Procedures Team Activities

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Topics

- Levee Safety Program Overview
- Policy & Procedures Activities

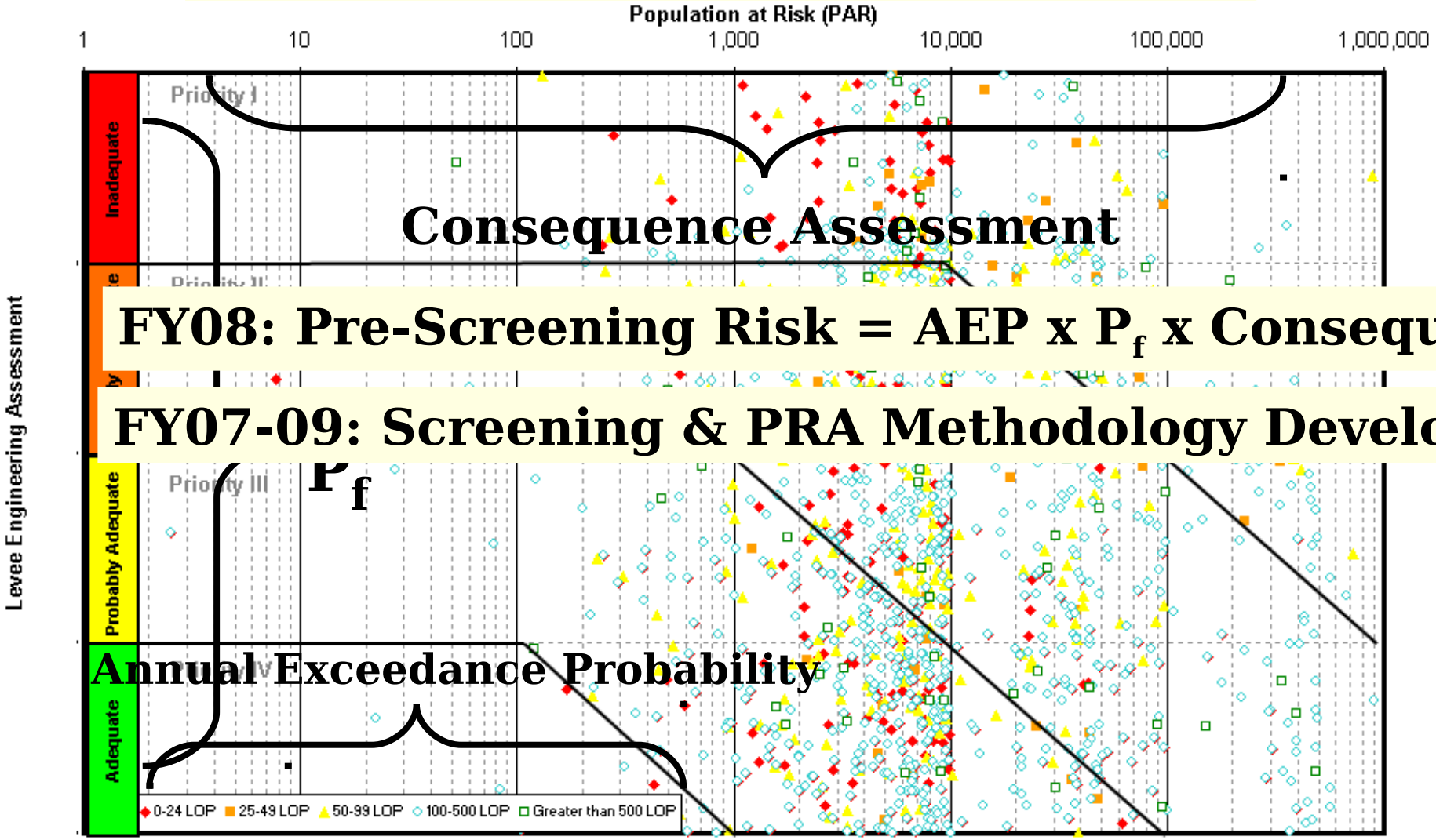
Levee Safety Program Mission

- Assess the integrity and viability of levees and recommend actions to assure that levee systems do not present unacceptable risks to the public, property, and the environment.

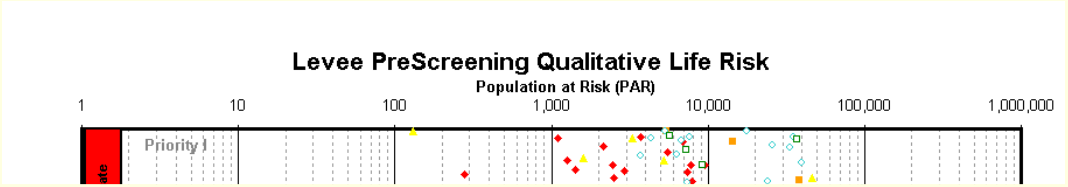
Program Objectives

- Hold Public Safety Paramount
- Reduced Economic Impacts
- Maximize Cost Effectiveness
- Develop Reliable and Accurate Information
- Build Public Trust and Acceptance

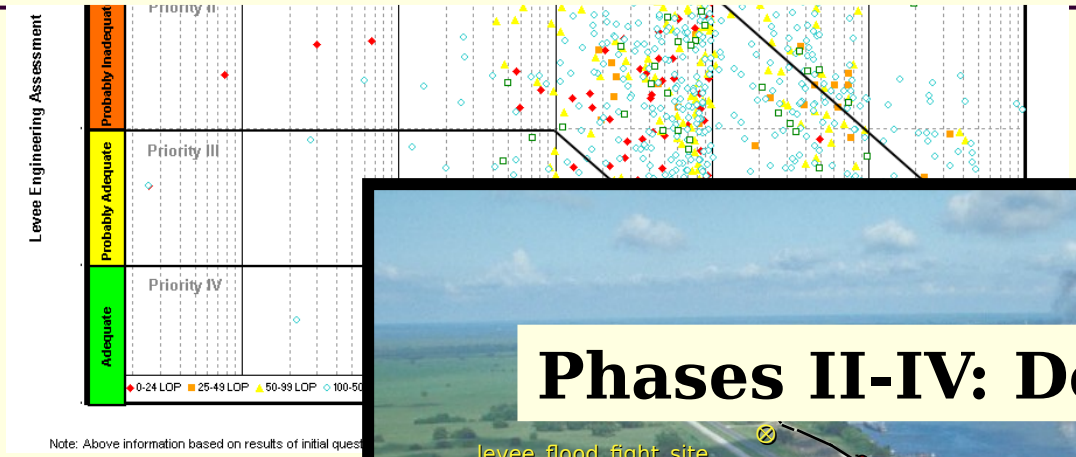
Risk Methodology Development

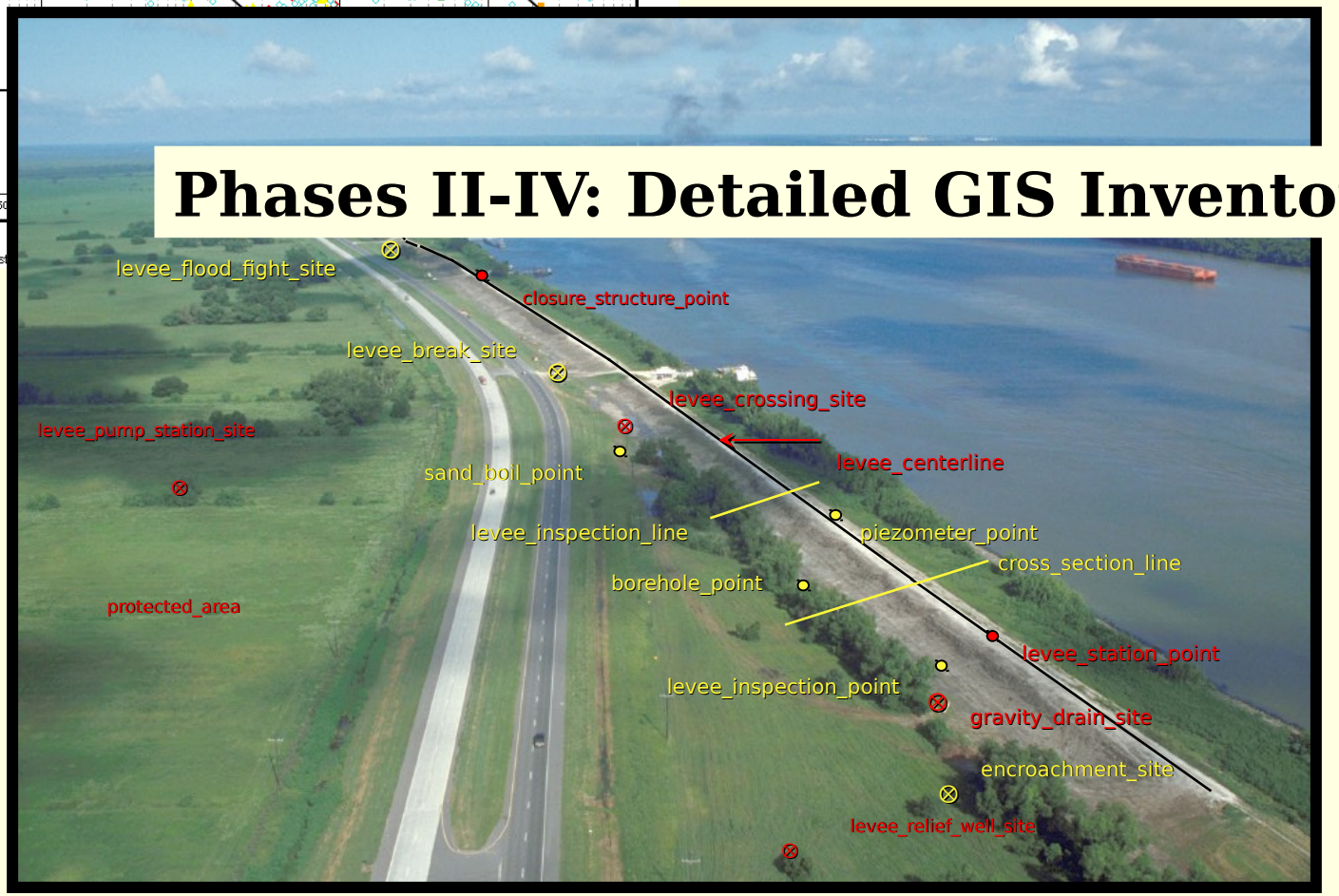


Note: Above information based on results of initial questionairre survey for District Levee Projects



hase I: Initial Levee Survey Results





Implementation Guidance

- November 2008 Guidance
- Established Levee Safety Officers (LSO)
- Established Levee Safety Program Managers (LSPM)
- Requested field organizational structure
- Detailed information on inspections
  - Purposes
  - Timing
  - Inspection tool training
  - Checklist

MSC Program Structure

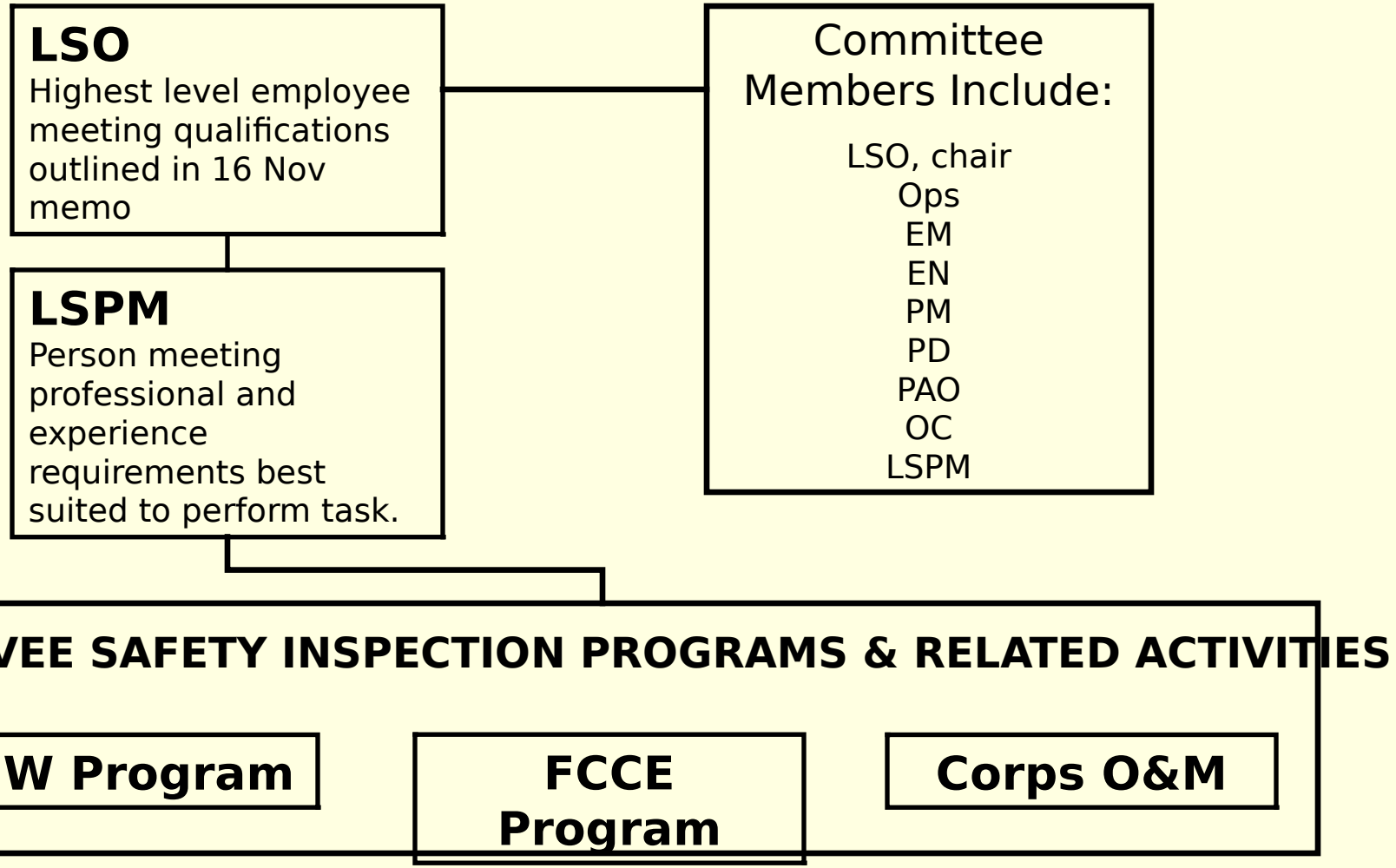
- **LSO is 'Engineering technical lead for the Program**

  Qualifications:
  SES*, P.E. with civil engineering background, management abilities, and competency in the areas related to levee system engineering, design, construction, or operations.

- **LSPM 'should function in the organization (where mo appropriate) to manage Program execution.'**

  Qualifications:
  P.E or P.G. with management abilities and knowledge and experience in the design, construction, operation, inspection, or evaluation of levee systems.

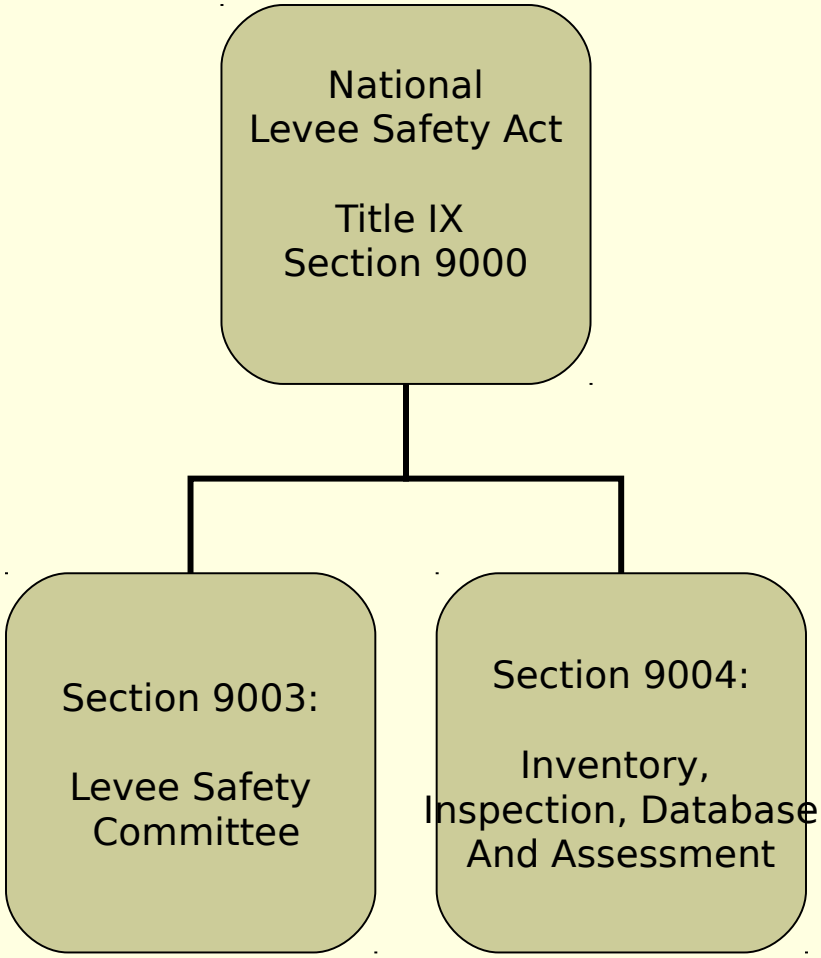
What does an effective Levee Safety Organization Look Like?



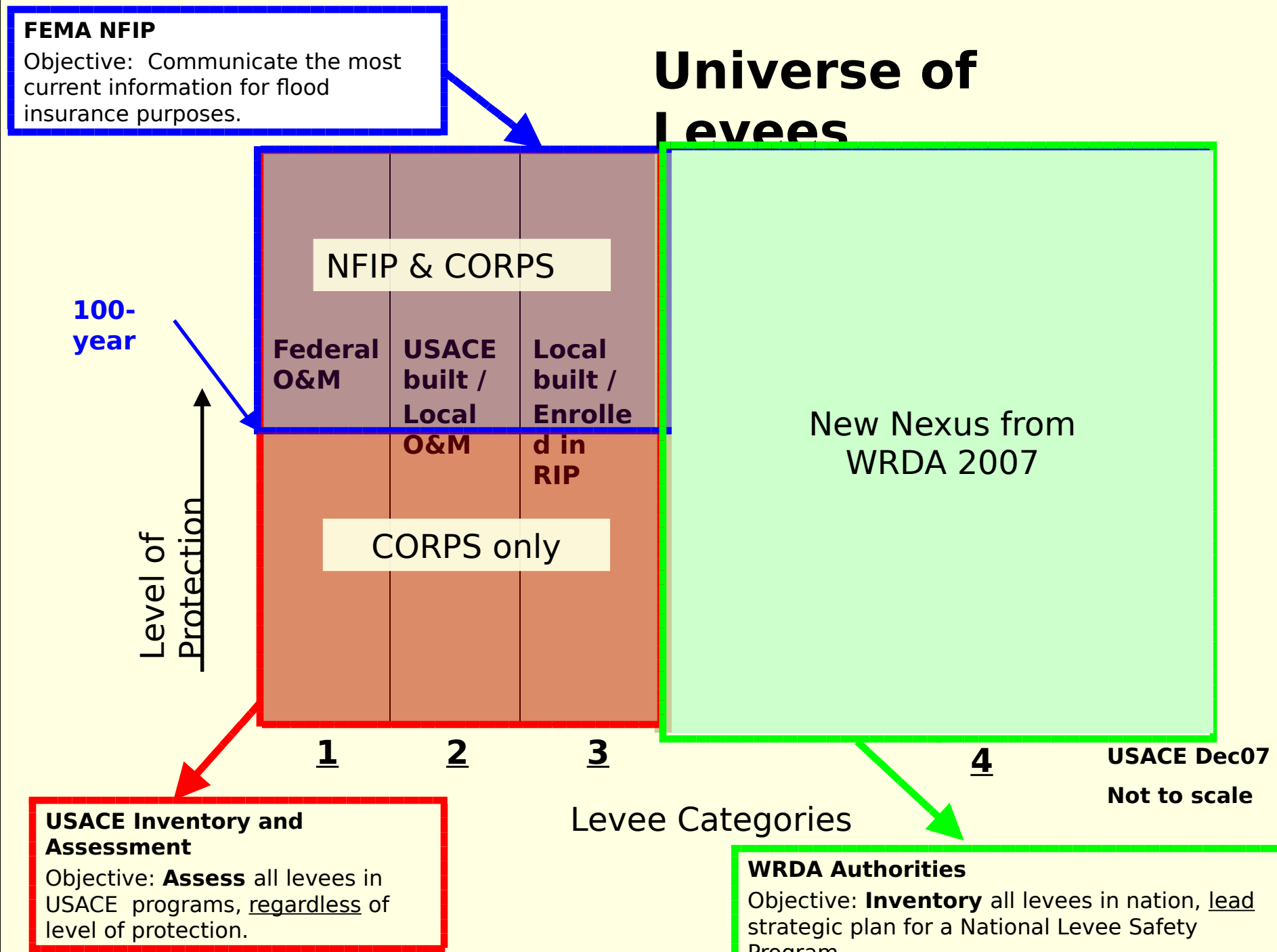
Levee Policy & Procedures Team Activities

- Implementation plan for WRDA and direct support to committee
- Developing draft Levee Safety concepts for “WRDA” Committee

Background on WRDA 2007 National Levee Safety Act



- Compliments Existing Activities & Authorities
- Two Major Components:
  - A Strategic Plan, Not a Program
  - Safety Data Collection
- “One Time” Nature
- Urgent Authority, Appropriation?
- Small Federal Footprint


FEMA NFIP
Objective: Communicate the most current information for flood insurance purposes.
Universe of Levees
NFIP & CORPS
100-year
Federal O&M
USACE built / Local O&M
Local built / Enrolled in RIP
CORPS only
New Nexus from WRDA 2007
Level of Protection
1
2
3
4
USACE Dec07
Not to scale
Levee Categories
USACE Inventory and Assessment
Objective: Assess all levees in USACE programs, regardless of level of protection.
WRDA Authorities
Objective: Inventory all levees in nation, lead strategic plan for a National Levee Safety Program

Levee Policy & Procedures Team Activities

- Developing and evaluating screening method for Corps levee portfolio (~2,000 levees)
  - Uses information from revised Levee Inspector Tool
  - Engineering Assessment/Judgment on:
    - Geotechnical
    - Structural
    - H&H
  - Estimated population
  - Estimated economic impacts
  - Provides basic snapshot of areas of concern

Levee Policy & Procedures Team Activities

- Initiate update/consolidation of criteria into Engineering Regulation for Levee Safety
- Policy documents for implementation of more Robust inspection program
- Finalize Periodic Inspection criteria
- Finalize criteria for Population at Risk for areas behind levees
- Based upon 16 Nov 2007 HQUSACE Levee Safety Memorandum, evaluate and assess proposed organizational structure across USACE

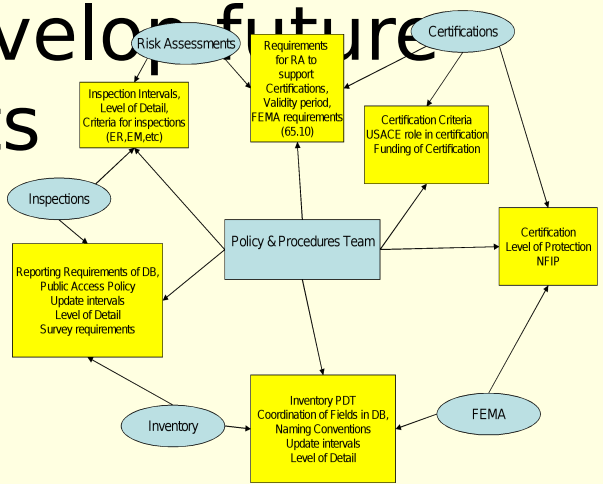
Levee Policy & Procedures Team Activities

- Develop communication tools and products
- Develop tolerable risk guidelines
- Technical standards, quality assurance, quality control

Levee Policy & Procedures Team Activities

- Refine and continue development of criteria for assessment of Levees

  (Levee Safety Action Classification Chart)
- Develop Interim Risk reduction Measures for Levees
- With Dam Safety, develop future organization concepts


Risk Assessments
Requirements for RA to support Certifications, Validity period, FEMA requirements (65.10)
Certifications
Inspection Intervals, Level of Detail, Criteria for inspections (ER,EM,etc)
Certification Criteria USACE role in certification Funding of Certification
Inspections
Policy & Procedures Team
Certification Level of Protection NFIP
Reporting Requirements of DB, Public Access Policy Update intervals Level of Detail Survey requirements
Inventory PDT Coordination of Fields in DB, Naming Conventions Update intervals Level of Detail
Inventory
FEMA

USACE Dam Safety Action Classification Table*

Dam Safety Action Class		Characteristics of this class	Actions for dams in this class
I **URGENT AND COMPELLING** (Unsafe)		**CRITICALLY NEAR FAILURE** Progression toward failure is confirmed to be taking place under normal operations. Almost certain to fail under normal operations from immediately to within a few years without intervention. **OR EXTREMELY HIGH RISK** Combination of life or economic consequences with probability of failure is extremely high.	Take immediate action to avoid failure. Validate classification through an external peer review. Implement interim risk reduction measures, including operational restrictions, and ensure that emergency action plan is current and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Expedite investigations to support justification for remediation using all resources and funding necessary. Initiate intensive management and situation reports.
II **URGENT** (Unsafe or Potentially Unsafe)		**FAILURE INITIATION FORESEEN** For confirmed (unsafe) and unconfirmed (potentially unsafe) dam safety issues, failure could begin during normal operations or be initiated as the consequence of an event. The likelihood of failure from one of these occurrences, prior to remediation, is too high to assure public safety. **OR VERY HIGH RISK** The combination of life or economic consequences with probability of failure is very high.	Implement interim risk reduction measures, including operational restrictions as justified, and ensure that emergency action plan is current, and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Expedite confirmation of classification. Give very high priority for investigations to support justification for remediation.
III **HIGH PRIORITY** (Conditionally Unsafe)		**SIGNIFICANTLY INADEQUATE OR MODERATE TO HIGH RISK** For confirmed and unconfirmed dam safety issues, the combination of life or economic consequences with probability of failure is moderate to high.	Implement interim risk reduction measures, including operational restrictions as justified, and ensure that emergency action plan is current and functionally tested for initiating event. Conduct heightened monitoring and evaluation. Prioritize for investigations to support justification for remediation considering consequences and other factors.
IV **PRIORITY** (Marginally Safe)		**INADEQUATE WITH LOW RISK** For confirmed and unconfirmed dam safety issues, the combination of life or economic consequences with probability of failure is low and may not meet all essential USACE guidelines.	Conduct elevated monitoring and evaluation. Give normal priority to investigations to validate classification, but no plan for risk reduction measures at this time.
V **NORMAL** (Adequately Safe)		**ADEQUATELY SAFE** Dam is considered safe, meeting all essential USACE guidelines with no unconfirmed dam safety issues. **AND RESIDUAL RISK IS CONSIDERED TOLERABLE**.	Continue routine dam safety activities, normal operation, and maintenance.

* At any time for specific events a dam, from any action class, can become an emergency requiring activation of the emergency plan

DRAFT

DRAFT ➔ USACE Levee* Safety Action Classification Table ➔ DRAFT

Levee Safety Action Class	Characteristics of this class	Actions for levees in this class
I URGENT AND COMPELLING (Unsafe)	**LIKELY FAILURE AT LESS THAN PROTECTED HEIGHT** Levee line-of-protection system likely to fail from erosion, loss of structural stability, under-seepage, or other causes at flood heights below top of levee. Population at risk > 10,000; high hazard potential classification. **OR EXTREMELY HIGH RESIDUAL RISK** Residual risk from overtopping is extreme for urban floodplain with less than 50-year level of protection and population at risk > 10,000)	Take immediate action to prevent/mitigate failure. Validate classification through an external peer review. Implement interim risk reduction measures, including potential interim upstream storage operational changes; ensure that warning and emergency action plan is current and functionally tested. Notify owner, state, Federal and local officials; require owner develop remedial plan to address deficiencies. Mount intensive campaign to promote purchase of flood insurance. Schedule for highest priority risk assessment.
II URGENT (Unsafe)	**FAILURE LIKELY AT PROTECTED HEIGHT** Levee line-of-protection system likely to fail from erosion, loss of structural stability, under-seepage, or other causes at flood heights reaching top of levee. Population at risk > 10,000, high potential hazard classification, level of protection less than 100-year. **OR VERY HIGHRESIDUAL RISK** Residual risk from overtopping is very hig… floodplain with less than 100-year level of …d population at risk > 10,000); or rural floo… population at risk <10,000 and level of pr… less than 50 year.	Implement interim risk reduction measures, including potential interim upstream storage operational changes; ensure that warning and emergency action plan is current and functionally tested. Notify owner, state, Federal and local officials; require owner develop remedial plan to address deficiencies. Mount intensive campaign to promote purchase of flood insurance. Conduct heightened monitoring and schedule for high priority risk assessment.
III HIGH PRIORITY (Conditionally Unsafe)	**FAILURE POSSIBLE AT PROTECTED HEIGHT** Levee line-of-protection system may fail from erosion, loss of structural stability, under-seepage, or other causes at flood heights reaching top of levee. Population at risk > 10,000, significant or high hazard potential classification, level of protection less than or approaching 100-year. **OR HIGH RESIDUAL RISK** Residual risk from overtopping is high for urban floodplains with population at risk >10,000; agricultural levees with level of protection less that 50 year and population at risk <10,000.	Ensure that warning and emergency action plan is current and functionally tested. Notify owner, state, Federal and local officials; require owner develop remedial plan to address deficiencies. Mount energetic campaign to promote purchase of flood insurance Prioritize for risk assessment to support justification for remediation considering consequences and other factors. .
IV PRIORITY (Marginally Safe)	**FAILURE LESS LIKELY AT PROTECTED HEIGHT** Levee line-of-protection system less likely to fail from erosion, loss of structural stability, under-seepage, or other causes at flood heights reaching top of levee. Population at risk > 10,000, significant or high hazard potential classification, level of protection at least 100-year. **OR HIGH RESIDUAL RISK** Residual risk from overtopping is moderate for urban floodplains with population at risk >10,000; agricultural	Ensure that warning and emergency action plan is current and functionally tested. Notify owner, state, Federal and local officials; require owner develop remedial plan to address deficiencies. Mount campaign to promote flood insurance. Normal priority of scheduling risk assessment.

Levee Policy & Procedures Team Activities

- Questions?